ADI LEAK DETECTION

LEAK DETECTION GUIDE

Is topping up boiler pressure every few days a sign of a central heating leak

The short answer

Topping up boiler pressure every few days points to water escaping from the sealed central heating circuit, not to normal system behaviour. A correctly sealed system holds pressure between services. The pressure drop is a symptom; the leak is the problem that needs finding.

What causes it

A sealed central heating system holds water under pressure, typically between one and one-and-a-half bar when cold. Water leaving that circuit reduces the volume of fluid, and the pressure gauge drops in response. The boiler then stops firing at the low-pressure cut-out threshold. Topping up through the filling loop restores the pressure temporarily — but does nothing to stop the loss continuing.

The water has to go somewhere physically. In the majority of cases it escapes through one of four routes: a pinhole in copper pipework, a weeping solder joint, a failing radiator valve body, or a corroded section of pipe buried beneath a floor screed or inside a partition wall. Pinhole leaks develop in copper pipe when the water chemistry inside the system becomes aggressive — low inhibitor

concentration accelerates this. The leak itself is often very slow, producing no visible wet patch because the water evaporates from a warm surface or soaks into the surrounding screed before it reaches a visible point.

Radiator valve failure is a separate mechanism. The valve body or its compression fitting can weep at the connection point, releasing a small but consistent volume of water. Because radiator tails are often boxed in or positioned close to skirting boards, this moisture travels along the floor and appears — if it appears at all — some distance from the valve itself.

Joints in microbore pipework, which runs under floors in many properties built during the 1970s and 1980s, are a further source. The fittings used in that era rely on olive compression joints, and these can fail gradually as the pipe expands and contracts through heating cycles over decades.

How ADI finds it

ADI Leak Detection approaches a central heating pressure loss survey in two stages: confirming that the system is losing water, then tracing the physical path of that water to its source.

The survey begins with a pressure test to establish whether the loss is consistent and ongoing. Acoustic listening equipment is then applied across the floor surface and along accessible pipework. This equipment amplifies the sound signature of water under pressure moving through a small aperture — a sound distinct from normal flow noise and from background vibration in the building.

Thermal imaging follows the acoustic phase. A calibrated thermal imaging camera detects temperature differentials at floor and wall surfaces. Escaping water from a heating circuit is warm, and warm water absorbs into screed or plaster in a pattern that a thermal camera resolves as a distinct gradient against the ambient surface temperature. ADI Leak Detection uses thermal imaging alongside acoustic detection equipment as a cross-reference: the acoustic result narrows the search area, and the thermal image identifies the precise surface location where investigation should begin.

For pipework concealed within walls or below deep screed, a tracer gas procedure supplements the thermal and acoustic work. Nitrogen and hydrogen tracer gas is introduced into the drained pipework under low pressure. The gas escapes at the defect point and rises through the screed or plaster, where a gas detector at the surface registers the concentration. This confirms the location to within a few centimetres without requiring speculative opening of floors or walls across a wide area.

A full central heating leak survey runs four to six hours on a standard residential property, covering the complete heating circuit from the boiler connections through to every radiator and return.

What to do next

Stop topping the system up repeatedly. Each time the filling loop is opened, fresh oxygenated mains water enters the circuit. Oxygen accelerates internal corrosion, and repeated topping up compounds the problem that caused the leak in the first instance.

Note how quickly the pressure drops. A system losing half a bar overnight behaves differently from one that takes four days to reach the low-pressure cut-out. Recording the rate of loss — time from full pressure to cut-out, number of times the boiler locks out — gives the surveyor useful baseline information before the survey begins.

Check all visible radiator valve connections and any exposed pipework for surface moisture or staining. Do not open floors or walls on the basis of guesswork. Speculative lifting of floor coverings across a wide area causes disruption and cost without reliably identifying the source. A leak detection survey narrows the opening to the confirmed location.

Contact ADI to arrange a central heating leak survey. The booking details and contact information are in the footer of this document.